

What is claimed is:

1. A grip tape for application to a substrate without substantially entrapping air bubbles between the tape and the substrate, the tape comprising:

a sheet of film, the sheet defining a first surface and a second surface opposite to and coextensive with the first surface, the surfaces having a width and a length defining an area;

a layer of grit material fixed on the first surface of the sheet; and

an adhesive layer on the second surface of the sheet,

wherein the adhesive layer, grit layer, and sheet include a plurality of perforations extending therethrough, the plurality of perforations distributed over the area of the sheet surfaces, each perforation defining a cross-sectional area, the plurality of perforation areas defining a cumulative area that is no more than about 1% of the sheet surface area over which the perforations are distributed.

2. The grip tape of claim 1 wherein the film sheet is substantially comprised of a thermoplastic material.

3. The grip tape of claim 1 wherein the film sheet includes two plies.

4. The grip tape of claim 1 wherein the layer of grit material substantially covers the first surface of the sheet.

5. The grip tape of claim 1 wherein the layer of adhesive substantially covers the second surface of the sheet.
6. The grip tape of claim 1 further comprising a release paper disposed over the adhesive layer.
7. The grip tape of claim 6 wherein the release paper includes a silicone coating.
8. The grip tape of claim 1 wherein the grit material is selected from the group of crushed glass particles, silicon carbide, and aluminum oxide.
9. The grip tape of claim 1 wherein the cumulative area of the perforations is at least about 0.04% of the sheet surface area.
10. The grip tape of claim 1 wherein the perforations are distributed in a substantially regular pattern.
11. The grip tape of claim 1 wherein the sheet width is at least about 9-inches.

12. A grip tape for application to a substrate without substantially entrapping air bubbles between the tape and the substrate, the tape comprising:

a sheet of film, the sheet defining a first surface and a second surface opposite to and coextensive with the first surface;

a layer of grit material adhered to the first surface of the sheet;

an adhesive layer coated on the second surface of the sheet,

wherein the adhesive layer, grit layer, and sheet include a plurality of pinholes extending therethrough, the plurality of pinholes providing the sheet with sufficient fluid passage therethrough to substantially prevent the entrapping of air bubbles between the tape and the substrate.

13. The grip tape of claim 12 wherein at least a portion of the pinholes have a diameter of between about 0.007-inches and about 0.025-inches.

14. The grip tape of claim 12 wherein the film sheet includes two plies.

15. The grip tape of claim 12 further comprising a release paper disposed over the adhesive layer.

16. The grip tape of claim 12 wherein the grit material is selected from the group of crushed glass particles, silicon carbide, and aluminum oxide.

17. The grip tape of claim 12 wherein the pinholes are distributed in a substantially regular pattern.

18. The grip tape of claim 12 wherein the tape is provided in a roll having a width, and wherein the width is at least about 9-inches.

19. A grip tape for application to a substrate without substantially entrapping air bubbles between the tape and the substrate, the tape comprising:

a sheet of film, the sheet defining a first surface and a second surface opposite to and coextensive with the first surface, the surfaces having a width and a length defining an area;

a layer of grit material adhered to the first surface of the sheet;

an adhesive layer coated on the second surface of the sheet;

and a plurality of pinholes distributed over the area of the sheet surfaces, the plurality of pinholes having a spacing and each pinhole having a diameter to provide the sheet with sufficient fluid passage therethrough to substantially prevent the entrapping of air bubbles between the tape and the substrate.

20. The grip tape of claim 19 wherein at least a portion of the pinholes have a diameter of between about 0.007-inches and about 0.025-inches.

21. The grip tape of claim 19 wherein the film sheet includes two plies.

22. The grip tape of claim 19 wherein the spacing between adjacent pinholes is no less than about 0.2-inches.
23. The grip tape of claim 19 wherein the pinholes are distributed in a substantially regular pattern.
24. The grip tape of claim 19 wherein the sheet width is at least about 9-inches.
25. A method for making a perforated grip tape for application to a substrate substantially without forming air bubbles between the tape and the substrate, the method comprising:
- providing a length of film having a first surface and a second surface and a width;
 - applying an adhesive layer to the first surface of the film;
 - applying a layer of grit to the second surface of the film;
 - perforating the film, adhesive layer, and grit layer with a plurality of pinholes distributed over the length and width of the film, the pinholes sized and spaced apart to provide sufficient fluid passage therethrough to substantially prevent air bubbles from forming between the tape and the substrate.
26. The method of claim 25 wherein the film is a two-ply film.
27. The method of claim 25 further comprising a step of curing the adhesive on the film.

28. The method of claim 25 further comprising a step of applying a release paper to the adhesive.

29. The method of claim 25 further comprising a step of applying a binder to the second surface of the film to attach the grit layer to the film.

30. The method of claim 29 further comprising a step of at least partially curing the binder on the film.

31. The method of claim 19 further comprising a step of applying an adhesive over the grit layer.

32. The method of claim 31 further comprising a step of curing the adhesive over the grit layer.

33. The method of claim 25 wherein the step of applying the grit layer includes an electrostatic application of the grit.

34. The method of claim 25 wherein the pinholes are distributed in a regular pattern of staggered rows.

35. The method of claim 25 wherein the pinholes are distributed over an area of the tape, and the pinholes provide an area for fluid passage therethrough which is between about 0.04% and about 1.0% of the tape area over which the pinholes are distributed.

36. The method of claim 25 wherein the step of perforating the film includes a step of providing a first roller with an outer cylindrical surface, the roller having a plurality of pinhole-making structures distributed over the cylindrical surface, and a step of rolling the tape over the first roller to perforate the tape with the pinholes.

37. The method of claim 36 further comprising a step of providing a second roller with an outer cylindrical surface opposed to the surface of the first roller for rolling the tape therebetween to perforate the tape with the pinholes.

38. The method of claim 37 wherein the surface of the second roller substantially comprises a material having a hardness between about 50 Shore A scale and about 65 Shore D.

39. The method of claim 25 wherein the step of perforating the film includes a step of providing a board having a plurality of pinhole-making structures distributed over a surface of the board, and a step of laying the tape over the board to perforate the tape with the pinholes.

40. The method of claim 39 further comprising a step of providing a plate disposed over the board for pressing the tape onto the pinhole-making structures.

41. The method of claim 25 wherein the width of the film is at least about 9-inches.